Bilateral spontaneous internal carotid artery dissection with severe cerebral perfusion deficit: early management

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Abstract

A 59-year-old male was admitted in the emergency department with a one-week history of headaches, asthenia and inadequate speech. A pacemaker was implanted the previous month for nodal sinus disease. Neurological examination revealed encephalopathy, disorientation, inadequate speech and limitation of horizontal gaze. No lesions were visualized on brain computed tomography (CT) and CT angiography (CTA). Blood and cerebrospinal fluid analyses and electroencephalogram were unremarkable. Brain magnetic resonance imaging (MRI) showed recent bilateral ischemic lesions in watershed territories of anterior circulation. Magnetic resonance angiography (MRA) showed slow flow of all anterior circulation territory and magnetic resonance perfusion (MRP) confirmed a perfusion deficit. CT/CTA re-evaluation was consistent with bilateral dissection of both internal carotid arteries (ICA). Coma and decerebrate posturing occurred which did not resolve after induced hypertension. Left ICA revascularization with stenting and angioplasty was achieved. Right ICA treatment was unsuccessful but right middle cerebral artery collateral flow was observed. Follow-up brain MRI showed bilateral ischemic lesions in deep watershed territories. After neurointensive care a neurological improvement occurred. After a month, the patient is oriented, with preserved language function, and presents dysarthria and left hemiparesis (upper limb grade 3, lower limb grade 4). We report a rare case of spontaneous bilateral ICA dissection, with neurological manifestations consistent with cerebral hypoperfusion. Carotid dissection identification and cerebral perfusion deficits evaluation are essential to manage supportive treatment and identify patients who benefit from emergent endovascular carotid revascularization.